ATTACHMENT B

REMARKS

By the present amendment, Applicants have amended the present application so as to overcome additional minor objections of the Examiner and place the application in condition for allowance. In particular, Claim 14 has been amended to direct the claimed methods to treatment of *S. epidermidis* infections and to overcome a minor error to the wording. New claim 23 is also provided which relates to the method of inhibiting binding of *S. epidermidis* such as disclosed in the present application, e.g., at pages 2-7 and 28-31 of the specification, and no new matter has been added. Finally, non-elected claims have been canceled without prejudice. For reasons as set forth in more detail below, Applicants submit that the present amendments and attachments overcome all prior objections and place this case in condition for allowance.

In the Official Action, the Examiner made a minor objection to Claim 17 on the basis that the word "inhibit" was inadvertently misspelled. It is presumed that the Examiner meant to refer to Claim 14 where this error occurred, and this error has been corrected in the amended claims.

In the Official Action, the Examiner rejected Claims 14 and 16-17 under 35 U.S.C. §112 as not fulfilling the written description requirement. In particular, the Examiner acknowledged that the antibodies used in the claims were sufficiently described, but that the method claims were not sufficiently described because no "specificity as to a single member of the genus of epitopes to SdrG to which members of the claimed genus must bind" was provided. In addition, the Examiner argued that the skilled artisan could not envision or recognize "at least a substantial number of

members of the claimed genus of antibodies." The Examiner went on to state that the specification failed to disclose "which amino acid residues are essential to the function of the immunoepitope or which amino acids might be replaced so that the resultant immunoepitope retains the activity of the parent." Contrary to the Examiner's arguments, the only relevant consideration is whether the original application, including specification and claims, provides a suitable written description clearly enough that one having ordinary skill in the pertinent art would recognize from the disclosure that the patentee invented processes including the claim limitations. See In re Smythe, 178 USPQ 279 (CCPA 1973). In the present case, the original description and claims of the patent application provided sufficient disclosure to show one skilled in the art that all of the claimed method steps were adequately described in the specification and claims.

As previously pointed out, and as recognized by the Examiner, the Written Description Guidelines Training Materials are very explicit with regard to invention concerning antibodies and recognize that the level of skill allows one in this art to prepare and utilize antibodies once one has specifically characterized the antigen recognized by those antibodies. Accordingly, with regard to antibodies, the training materials do not assess on a micro scale the presence of epitopes in the antigen targeted by the claimed antibody, nor do they require or discuss the question of what determinants would elicit an immune response. The fact that the Applicants disclose an antibody to a specific, well characterized antigen clearly indicates that no further description or analysis of the question of epitopes or immunoepitopes is necessary. In the present case, although the claimed method relates to the use of antibodies, one skilled in the art would readily be able to generate antibodies to the specific antigen of

the claims, and would readily be able to utilize those antibodies to do exactly what the specification says they do, namely treat or prevent infection from *S. epidermidis*, and prevent *S. epidermidis* from binding either to host cells on a patient or to a medical device or polymeric biomaterial that may contain host cells. Moreover, since polyclonal antibodies by nature target multiple epitopes, there is no need or relevance whatsoever to identify specific epitopes or immunoepitopes since indeed the disclosure of the target of the antibodies, in this case the A domain of SdrG, will be sufficient for one to make and use the invention. See attached Declaration of Dr. Joseph M. Patti. Accordingly, it is clear that the invention as presently claimed is sufficiently described in the specification that one skilled in the art would recognize inventorship of the claims on the part of the present inventors.

The Written Description Training Materials are in accord on this point. Attached hereto are excerpts from the Training Materials which show the proper analysis of the claims for a determination of Written Description. In particular, the matrix asks are "complete acts of a claimed or disclosed process disclosed?" See Training Materials at Page 8. In the present case, the application describes repeatedly the use of the antibodies of the present invention in the treatment and prevention of infection from *S. epidermidis* as well as the use of the antibodies in the blocking of adherence and the inhibition of binding of *S. epidermidis* from host cells and other biomaterials. See, e.g., Pages 2-7 and 28-31. Even further, the description requirement is met when there is directly or inherently a disclosure of the claimed subject matter even where the language of the claims is not necessarily described in haec verba in the description. See In re Smith, 173 USPQ 679 (1972).

Finally, the Examiner has analyzed the written description requirement in terms of a genus claim, indicating that the method as previously claimed related to all coagulase-negative staphylococcal infections. In any event, the present claims are now directed to methods of treating infections of *S. epidermidis* using antibodies to a very specific antigen, namely the A domain of the SdrG protein, found at amino acids 51-548 of the SdrG protein as reflected in SEQ ID NO: 10. Accordingly, the claimed invention is directed specifically to the use of specific isolated antibodies to treat or prevent infection from *S. epidermidis,* or to prevent it from binding to host cells, and the disclosure clearly provides a full description of how this would be done. There is thus no question that the disclosure of the present invention allows one skilled in the art to recognize that the inventors invented what is claimed, which is the standard under *Vas-Cath*, and the fact that others skilled in the art have been able to use the same teaching of the present specification and utilize it in the manner taught by the specification clearly establishes that the invention was in Applicants' possession and was properly described in accordance with Section 112. Accordingly, the Examiner's rejection on the grounds of 35 U.S.C. §112, insofar as applied to the claims as amended, is respectfully traversed and should be withdrawn.

In the Official Action, the Examiner rejected Claims 14 and 16-17 under 35 U.S.C. §112 as not fulfilling the enablement requirement. In particular, the Examiner argued that one skilled in the art would not be enabled by the present specification because one could not practice the invention without undue experimentation. In addition, despite the evidence provided by Applicants that the present invention had in fact been made and used by those skilled in the art, the Examiner objected to the

evidence as not being provided in the form of a Declaration, and not showing the efficacy of SdrG in the treatment or prevention of infection. These arguments are respectfully traversed.

As an initial matter, the key question with regard to enablement and undue experimentation is not whether a large amount of experimentation is necessary to achieve the goals of the invention, but whether the nature of the experimentation is routine. See In re Wands, 8 U.S.P.Q.2d 1400 (Fed. Cir. 1988). In the present case, the Applicants have pointed out precisely where one would go to generate antibodies to use in the present method, namely the A domain of SdrG, actually generated these antibodies, see pages 49-51, and described in detail that these antibodies could be used to block *S. epidermidis* adhesion and treat *S. epidermidis* infection. Under these circumstances, there is no question that one could practice the invention from the specification using routine techniques well available to the trained practitioner and without undue experimentation.

Moreover, it appears that the Examiner recognized that indeed practitioners have been able to make and use the invention for this purpose, but merely contested the manner of providing this information as not being in the form of a Declaration, and these objections are now traversed. As set forth in the attached Declaration of Dr. Joseph Patti, Ph.D., scientists in this field have been able to generate antibodies in accordance with the teachings of the invention and to administer those antibodies to achieve the desired results of reducing or treating *S. epidermidis* infections. In addition, studies have shown that the SdrG portion of an antibody composition was necessary to provide protection against *S. epidermidis* infection in vivo. Further, another group working with

antibodies to a protein closely similar to the SdrG protein obtained successful results in terms of preventing infection in vivo and also showed that the antibodies had an effect on fibrinogen binding as well. See Declaration. ¶¶ 6-7.

Accordingly, despite the Examiner's claims of undue experimentation in terms of practicing the invention, the invention has indeed been practiced by those skilled in the art using routine methods well within the scope of the ordinary practitioner in this field. The Examiner's rejection on the basis of enablement, insofar as applied to the claims as amended, is respectfully traversed and should be withdrawn.

Finally, the Examiner objected to the use of the term "amino acids 51-598 of SEQ ID NO: 10", and similarly to the use of the term "nucleic acid having the sequence of nucleotides 151-1794 of SEQ ID NO: 7." These objections are respectfully traversed in that the specification clearly discloses the SdrG protein at SEQ ID NO:10 and the nucleic acids coding for the SdrG protein at SEQ ID NO:7. Previously, the claims referred to the A domain of SdrG which is repeatedly described in the present specification. As indicated in the schematic view of Fig. 5, the section 5B of that figure shows a schematic of the Sdr proteins including SdrG, "showing the relative position and/or size of their signal sequences (S), **region As (A)**, region B repeats (Bn), SD-repeat region (SD), region C (C) (SdrH only), and wall/membrane spanning regions (WM)." See Page 8, lines 15-18 (emphasis added). The schematic thus identifies that the signal sequence of SdrG is 50 amino acids long ("S50") and that the A domain of SdrG follows the signal region and is 548 amino acids long ("A548"). This was acknowledged by the Examiner who recognized that Fig. 5 disclosed that the A domain was 548 amino acids long.

Since the signal sequence of the SdrG protein is 50 amino acids long, the SdrG region starts at amino acid number 51 and goes until amino acid 598, thus giving the range of the A domain as from amino acid 51-598 of the SdrG sequence, which was originally disclosed in drawing figures and ultimately was identified as the sequence shown at SEQ ID NO: 10. Further, when one is aware of where a particular amino acid region is located on the protein, it is a simple matter to match up the region with the position of the nucleotides of the nucleic acid sequence encoding that protein, and in this case, nucleotides 151 to 1794 code for the amino acids 51-598. Since the nucleic acid sequence of SdrG was also disclosed in the application, and which was ultimately identified as SEQ ID NO:7, it is clear that the specific nucleotide sequence as claimed is fully disclosed in the specification as well.

In light of the amendments and arguments as set forth above, Applicants submit that the present amendment overcomes all prior rejections, and that the present application has been placed in condition for allowance. Such action is respectfully requested.

END OF REMARKS

Written Description
Original Claims
--Decision Tree--